

REMARKS

The present invention relates to catalysts for copolymerization of olefins and styrenes, and to methods for producing olefin-styrene copolymers. Particularly it relates to catalysts for olefin-styrene copolymerization comprising, as one component, a specific compound, and to inexpensive and efficient methods for producing olefin-styrene copolymers with the catalysts.

As described in the specification under "Background Art", beginning at page 1, second paragraph, metallocene catalysts, used for olefinic polymer production, in order to exhibit satisfactory activity, require large amounts of promoters such as aluminoxanes and the like, which result in relatively high total catalyst costs and promoter-caused catalyst residue often remaining in the polymers thereby unfavorably coloring them. Various prior art has tried to address these problems, which prior art has not been satisfactory. The present invention successfully addresses these problems. As recited in above-amended Claim 1, the catalyst of the present invention comprises the above-recited components (A), (B), (C), and optionally (D).

The rejections of Claims 1, 3, 4, and 7-14 under 35 U.S.C. § 102(e) as anticipated by any of U.S. 6,271,313 (Zambelli et al); U.S. 6,242,544 (Küber, et al); and U.S. 6,191,241 (Starzewski et al), are respectfully traversed.

Zambelli et al discloses the formation of styrene-butadiene block copolymers having a particular structure using certain catalyst systems when the polymerization is conducted at a particular 1, 3-butadiene partial pressure and within a particular temperature range (paragraph bridging columns 13 and 14). The catalyst system comprises a catalyst

component and a co-catalyst component, as described in the specification at column 14, line 31 through column 15, line 37. Küber et al discloses a catalyst system for polymerization or copolymerization of olefins comprising a co-catalyst, preferably an aluminoxane or a supported aluminoxane, and a particular metallocene. Starzewski et al disclose that high-melting polyolefins can be prepared using particular metallocene compounds.

The Examiner relies on the disclosure of a siloxy compound in each of Zambelli et al, Küber et al and Starzewski et al as representative of presently-recited component (B). However, component (B) in above-amended Claim 1, cannot be a siloxy compound. Indeed, the Examiner's rationale is based on a finding of overlap of various of the above-recited components. There is clearly no overlap herein. Indeed, neither Zambelli et al, Küber et al, nor Starzewski et al disclose or suggest presently-recited component (C).

Accordingly, it is respectfully requested that these rejections be withdrawn.

The rejection of Claims 1, 3, 4 and 12 under 35 U.S.C. § 103(a) as obvious over U.S. 4,990,580 (Ishihara et al), is respectfully traversed. Ishihara et al discloses a process for producing styrene polymers in the presence of a catalyst comprising a titanium compound, and a contact product of an organoalumino compound and a condensing agent. However, Ishihara et al neither disclose nor suggest presently-recited component (C). Accordingly, it is respectfully requested that this rejection be withdrawn.

The rejections of Claims 1, 3, 4 and 7-14 under the judicially created doctrine of obviousness-type double patenting over Claims 1-19 of U.S. 6,107,232 (Yokota), or over Claims 1 and 9-12 of U.S. 6,255,244 (Yabunouchi), are respectfully traversed. While the Examiner refers to disclosure, double patenting rejections are based on claims only.

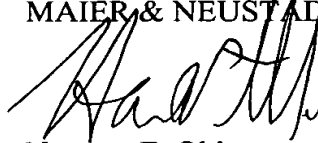
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Nevertheless, neither the claims of Yokota or Yabunouchi recite the presently-recited component (C). Accordingly, it is respectfully requested that these rejections be withdrawn.

All of the presently pending and active claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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